IA SPACE MATRIX
REDEFINING GLOBAL DESIGN & DELIVERY

Designing Positivity: Leveraging Neuroscience to Optimize Well-being In the Workplace

ABOUT THE PARTNERSHIP

In early 2020, IA and Space Matrix officially formed a partnership with a shared platform, powerfully strengthening both practices. Successful collaborations between joint teams around the world had already proved the partnerships' prowess and provided a glimpse of its future.

In May, we published a joint report detailing the results of a global survey about return-to-work. This new report builds on that research; co-authored by Mary Lee Duff, IA's Director of Strategy, and Su-San Tan, Space Matrix's Director of Workplace Strategy and Insights, working across several continents (and time zones) with a number of contributors to develop this comprehensive white paper.

OVERVIEW

Designing Positivity: Leveraging Neuroscience to Optimize Well-being In the Workplace

Although Covid-19 is one of the greatest global challenges we have faced in modern times—upending every facet of our lives, from the domestic sphere to the workplace—it also presents an opportunity to redesign our world for the better: to rethink our spaces and space-related practices to be more equitable and human-centered.

In fact, research shows that history's most devastating pandemics helped push societal norms and artistic output in a more egalitarian direction. "Each epidemic elicited a change in design ethos and philosophy," says Mette Shenker, a design director at IA. Consider the Black Death, which broke out in 1346 and stretched from Europe to the Middle East to Asia. Affecting people of all socioeconomic brackets equally, the plague was ultimately a force of democratization, breaking down hierarchies and creating greater awareness of humans as individuals. This change was reflected in the built environment: In contrast to Gothic architecture, with its somewhat ostentatious aesthetic and scale designed to inspire awe (and even fear) of the institutions these edifices represented, early-Renaissance structures dating

from the late 14th century were more humanist and humanizing. "After the Black Death, architecture and art pivoted away from stories about the elite classes and more to the laymen," Shenker explains. "Many great thinkers emerged during this period of time, and architecture became a social movement, more about the user than about the impact on the viewer."

The Covid-19 pandemic has similarly disrupted the status quo, shedding a spotlight on—and calling into question—longstanding systemic inequities. The health crisis coupled with ongoing anti-racist protests have prompted greater emphasis on inclusion and social justice in many nations, spurring a rethink of institutions, practices, and policies. In this context, the design community has a renewed opportunity and an imperative to be more active in the public realm, to incorporate more sustainable practices, and to bring equity to all spaces—including the workplace—with the goal of bolstering the end user's physical and psychological wellness and, by extension, the health and resilience of the communities of which they are part.

POSITIVE PSYCHOLOGY

The Link Between Well-Being & Organizational Resilience

Navigating these complex times demands resilience—i.e., the ability to bounce back from adversity amidst stress. This is true not only for individuals but also for groups and organizations. In fact, it turns out the two are interconnected, as abundant research reveals that the health of a company or community depends greatly on the well-being of its constituents.

As strategists and creators of the workplace environment, we know anecdotally that design can affect user mood and mind-set, and the research bears this out. A body of management science dubbed Organization Virtuousness, or OV,[1][2] teases out the connection. OV posits that the ability of an individual to "do good" by engaging in prosocial behaviors—i.e. to conduct themselves in a virtuous or morally good manner (the definition of which

depends on the context and the culture)—broadens and builds positive emotions, which are contagious. When individuals feel happier, it creates a ripple effect, elevating the collective mood. And when positive emotions are so amplified, it helps buffer individuals from the negative effects of stress—thus enhancing resilience.

In short, when people are in a positive mood, multiple desirable effects are more likely. Positive moods are linked to enhanced creative and innovative thinking[3] and a heightened ability to problem solve, make decisions,[4] get along better with others, and act in more socially responsible ways.[5] A positive mood is also tied to greater feelings of well-being.[6] The field of positive psychology—which focuses on the study of human flourishing and emphasises strengths

instead of weakness, building the good in life instead of repairing the bad—addresses many best practices for achieving it.[7]

Luckily, there are ways to proactively boost mood and inspire positivity in the workplace. This can be done through the design and interior architecture of the office environment, as well as through routines and processes. Through these means, an organization takes on shared ownership of helping employees perform "positive" practices.[8] For instance, employees can be given the opportunity to work in conditions that are preferable to them, which activity-based models support.

> "Integrating research from multiple sources, it's clear that workplace resilience can be fostered via a design that engenders positive moods and that support the task-at-hand, cognitive refreshment, and comfortable levels of control, signaling to users that they are valued,"

explains environmental psychologist Dr. Sally Augustin. And, she adds, "this can be done while also supporting organizational values and building community."

Encouraging desired positive behaviors is an idea that is relevant in the workplace but also applicable to society at large. While most companies understand the benefits of social capital and organizational citizenship behaviors, never has it been so important for everyone to cooperate in the new measures when we return to the office. "Moreover, embedding cues about what to do in a space is a decidedly more positive way of operating than the current Covid-reactive focus of communicating what not to do in a space (i.e., don't get too close to others)," says IA principal and workplace strategy director Mary Lee Duff. "Therefore, the workplace will need to be designed even more intelligently, intuitively, and consciously so that user comfort—physical, functional, and psychological—is enabled and contributes to that positivity."

ABOVE: **MGM PICTURESS**, BEVERLY HILLS CA
OPPOSITE: **CAPITALAND ASCENDAS PLAZA BRIDGE+**, SHANGHAI

POSITIVE PSYCHOLOGY

How Intentional, Thoughtful Design Can Foster Feelings of Positivity

Companies aspiring to foster organizational resilience can do so by designing their workplace to encourage behaviors that promote individual and group well-being as well as higher levels of professional performance. There are a number of evidence-based, research-supported design strategies—from color palettes and interactive technology to spatial layouts and furniture—to consider adopting:

Leverage Nudging Techniques.

Nudge theory was pioneered by University of Chicago professor and behavioral scientist Richard H. Thaler, who won a Nobel Prize in Economics for his research on the elements that drive people to make decisions about health and wealth. The concept of nudging has migrated into the design world via cues embedded in the environment that prompt occupants to enact certain behaviors deemed beneficial to their individual and collective healthy, safety, and well-being.[9]

A space can be designed or arranged so that these desired behaviors will naturally flow from the physical options presented. Common examples of nudges that encourage positive behaviors in the workplace include active design elements, such as a well-positioned and inspiringly designed staircase that entices people to skip the elevator and walk instead, thus getting exercise and creating opportunities for casual and collaborative conversations.

Although the practice of including cues in the environment to help guide users is not new, says Dr. Augustin, "it has extra relevance and offers new opportunities in today's current reality." An effective nudge in today's Covid-minded world encourages community-minded actions that help uphold safety, for instance using color and lighting strategies that steer employees to move along prescribed corridors, or subtle surface textures that encourage them to sit at specific intervals on a communal bench.

Companies can consider distributing handwashing stations throughout circulation routes, or removing all chairs from conference areas and elevating the height of adjustable tables so standing meetings[10] are more likely to occur, thereby eliminating the need for organizations to clean chairs (and for attendees to worry about if their chair has been cleaned).

A key to nudging is to encourage but not force the desired behavior. "People must not feel they are being manipulated via the nudges; if they do, a rebellion against desired actions becomes likely," Dr. Augustin says. "People need to have the agency and ability to move away from the nudge if they choose." In the aforementioned example, choice is still offered: the conference tables could be lowered and chairs obtained from a readily accessible storage area nearby if a standing-height meeting is not viable.

Give End Users a Comfortable Amount of Control Over Their Work Environment.

The concept of self-determination theory, which parses our innate psychological needs and the motivation behind our choices, outlines the optimal conditions required for people to do their best work: They need to feel competent at the task at hand, have a positive relationship with their colleagues, and have a degree of autonomy over how work gets done.[11] Having some control over choosing what activities we do, when and where we execute them, and who we interact with (and when) while doing so provides a positive psychological boost, helping employees perform at a higher level and get along well with each other,[12] which in turn benefits the entire company. This is because being given a sense of agency signals that the organization respects and supports the choices you'll make.[13] In brief, giving people control enables positivity and makes people feel safe.

The key is being given a comfortable amount of control, since research shows that too much control has the opposite of the intended effect, and instead creates stress.[14] Ideal is to offer a few curated choices that are relevant and appropriate to the end user and the space. In devising the lighting system for a conference room, for example, providing a dial that allows occupants to choose from all possible intensities and colors of light would prove overwhelming. "A better idea is to create four to six presets, appropriately calibrated to the most common uses of the room—presentations, group meetings, parties, etc.," says Mary Lee Duff.

There are many ways that technology can play a prominent role in fostering a sense of agency, says Smart Strategist Jay R. Wratten, a Vice President at WSP USA in Colorado. He cites the ability to check into a hotel remotely and walk directly to a suite that unlocks via smartphone and the ability to change an airplane seat or flight time just prior to boarding as good analogies. "A similar level of control given to the in-person office experience could change the way employees view the workplace," Wratten concludes.

Designing flexibility into a work environment—by allowing users to control or reorient certain parameters of their workpoints to suit their needs—can go a long way toward supporting agency, and has extra relevance in the Covid-minded office, says Space Matrix's Titir Dey (Managing Director, Design).

As an example, she describes the Hyderabad, India, location of a U.S.-based technology company that's high on collaboration and conscious about blending global and local aspects from the organization and user standpoint. "Even the primary workpoints were designed with added flexibility," she notes. "Rather than be attached to one spine, desks are designed as individual agile units that can be moved to the user's spot of choice or at a distance that makes them comfortable," which alleviates anxiety when they start coming back to work. "The arrangement, along with the user's flexibility to choose their preferred screen type and degree of opacity, to accessorize it, and to adjust its height and orientation provides the users a lot of control over the work environment."

Engender a Sense of Trust.

The physical environment can foster trusting relationships between employees and their organization, and between employees themselves. This can be done through the strategic use of color (blue is particularly effective [15]) or scent (lavender has been shown to engender trust[16]), reliance on familiar forms,[17] or by otherwise supporting—via design—the work that end users are tasked to accomplish.

In fact, people are more apt to trust the nonverbal messages communicated by the design than they are a written corporate mission statement. For instance, the appearance of appropriate cleaning protocols being followed sends a stronger message that employees are valued and taken care of than does wall signage promoting those protocols.

Technology is another medium that can be utilized to build trust. "The typical office worker is increasingly


ABOVE: **WHOLE FOODS**, SEATTLE WA
OPPOSITE: **HILTON**, SINGAPORE

leveraging data and analytics to influence their choices, and as a result, they expect access to data from organizations," says Wratten. "How good the building's air quality is, when a room was last used, whether the desk has been cleaned—these are all questions we can expect to be answered using technology, and doing so helps foster trust between employees and their workplace." He envisions a not-so-distant future when logging into a smartphone app to track when the desk was last sanitized will be as common as checking when the next train will arrive at your station.

The strategic use of color is another effective way to nurture confidence in an organization, says Laura Guido-Clark, Color Expert and Founder of Love Good Color: "Mixing grey and deep, warm tones into the color palette conveys a sense of weight and solidity—an assurance that things will be alright—which in turn communicates a sense of trust and ameliorates fear." Alternatively, adding white to any color, or simply choosing warmer shades of white, nurtures trust by conveying a sense of safety through hygiene, while helping avoid sterility that might result with Covid-minded measures.

Choose Color Palettes That Calm.

Color can also be used to allay fear and anxiety, Guido-Clark continues. In the Covid-minded work environment, she says, "key will be to keep the palette simple, to give it breathing room; think of color and the space as an exhale." Guido-Clark predicts that as a result of the pandemic we will crave more color in our spaces—"for emotional reasons and for physical wellness. We will be addressing a more heightened sense of emotions and values within the workplace (and in our home offices): countering fear with trust, collaboration as connection, and injecting elements of pure joy." In order to communicate these feelings, she advises focusing on the qualities of color—"its purity, or the effect due to brightness and saturation"—rather than specific colors. "Mixing warm and cool colors together can reflect collaboration," she says. "Color is contextual, so play with the combinations
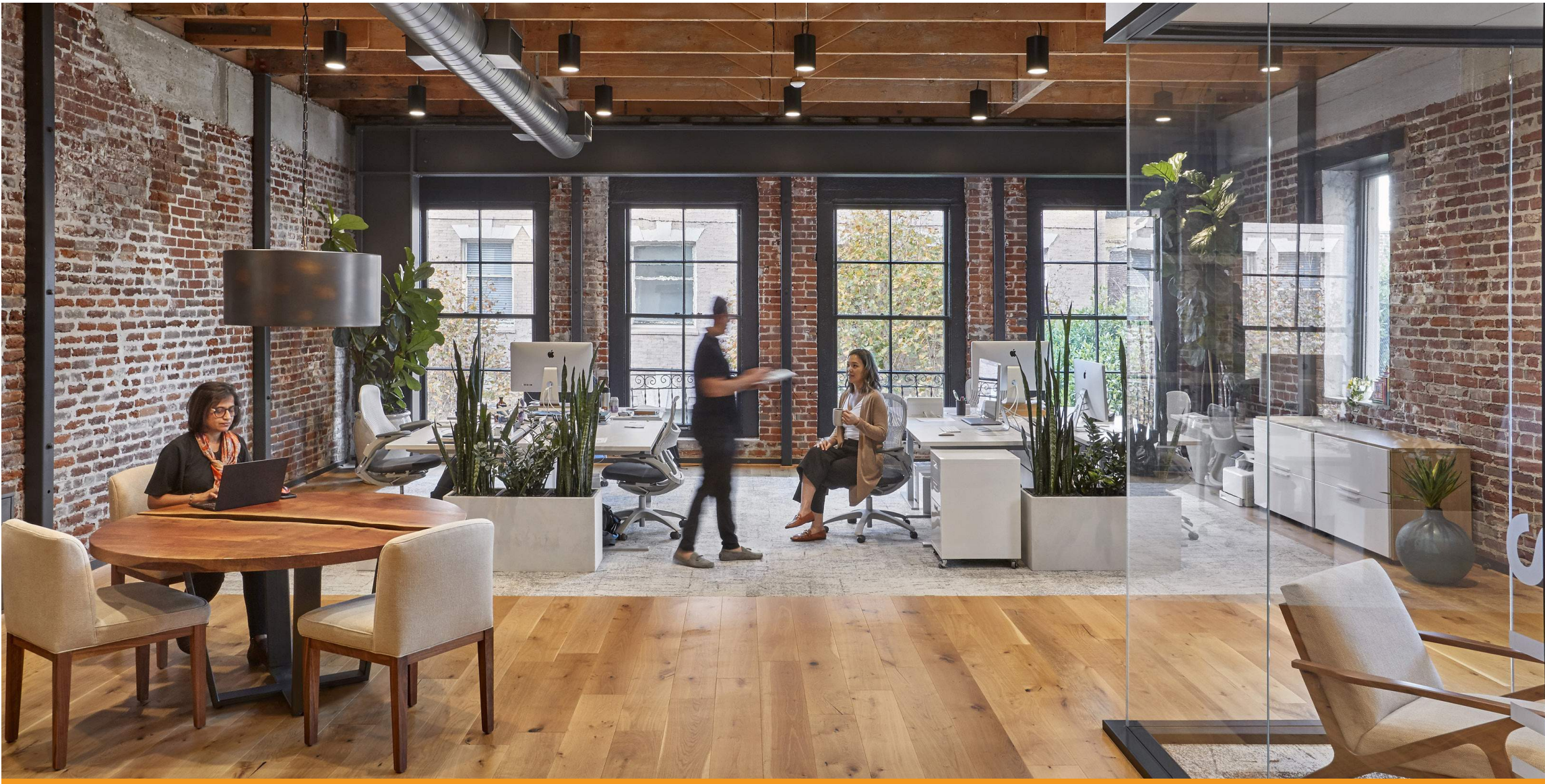
ABOVE: **01 ADVISORS**, SAN FRANCISCO CA

to create a sense of unity and delight." Convey joy by choosing bright, playful hues that have clarity and radiate positivity, she suggests. "Use them in areas that need delineation or boundaries and for communal spaces where people gather."

A recent project by Space Matrix, the office of a financial institution in Pune, India, demonstrates just such a use of color psychology. "We linked color to the different space types to bring the desired influence on human behavior, emotions, feelings, and actions—often at a very subconscious level," explains Titir Dey. "A neutral and natural palette sets a fresh, clean, and modern tone, while cool, refreshing accents promote a stable and calm environment in focus work areas. "Blue, which signifies reliability and encourages intellectual thoughts, was the natural choice for the focus work area, helping users be more productive," Dey notes. "A splash of green—which instills peace and often relates to mind/body balance—brings people closer to nature, thus creating a healthier and more soothing environment." In contrast, shared spaces for collaboration and cocreation need a lot of energy and buzz, which led to the selection of warmer, bold colors (red, yellow, orange) that invoke positivity and cheerfulness and stimulate thinking. Dey cautions, however, against the overuse of color, which can be stressful for emotional well-being. "So a thoughtful mix and balance with neutral and natural shades brings the best impact."

Employ Biophilic Principles to Maximize Comfort & Minimize Stress.

Our mental performance is improved and our stress level lowered in biophilicly designed spaces.[18] Deploying design principles and elements that would have been found in natural spaces where we flourished in our prehistory addresses human comfort at a fundamental, neurological level and help end users feel safe. "Biophilia speaks to the essence of being human, of being connected to a natural world that honed our minds and behaviors in our evolutionary past—a mind that uses nature not just for survival but also for emotional and social well-

ABOVE: **TROUTMAN PEPPER**, RALEIGH NC
OPPOSITE: **HILTON**, SINGAPORE

being," says pioneering environmental psychologist Judith Heerwagen. She offers everyday examples that illustrate how our attention to nature is still powerful: "We gather flowers for the dining room table, go for a walk in the woods, watch birds, listen to the sounds of trees rustling in the wind—all of which create pockets of pleasure in our lives. As well, we attend to events and elements that are potentially hazardous—such as a fast-approaching storm, dirty water, dark spaces that could have hidden hazards, and the presence of potentially harmful animals such as spiders, snakes, and vermin."

These behaviors, although they may seem mundane, have strong roots in evolutionary biology. The concept of the "adapted mind"[19] as developed by Barkow, Cosmides, and Tooby (1992) proposes a universal human nature linked to evolved psychological mechanisms that have guided human behavior across our evolutionary history—and which still guide behavior in our built environments. "Our strong link to nature is a central element of the adapted mind," Heerwagen adds.

Understanding the beneficial effects of nature and how these benefits can be replicated in the built environment is essential to the practice of biophilic design. For most species, being in the "right place" strongly influences survival and well-being. Biophilic design aims to provide those right spaces for humans by incorporating features and attributes that aided survival and flourishing in our evolutionary past while also eliminating hazards such as dark, unkempt spaces. We design with our adapted mind as a guide to environments that enhance our emotional, social and physical well-being. Such environments include:

01 Spaces with a variety of prospect and refuge attributes. "Consider elements that offer prospect (a view out) and refuge (a feeling that you're safe and secure where you are—for instance, high-backed seating booths with a view of the entry," says Dr. Augustin.[20]

02 Features that convey gentle movement, akin to a soft breeze. For example, window treatments that rustle gently in an HVAC current.[21]

03 Natural materials such as stone, copper, leather, and wood with exposed grain[22] that develop a patina over time.

04 Sensory variability, including light, sound, color, shapes and forms that mimic or directly use nature (such as fish tanks or other water features)[23]. "Only when our brains are comfortable —calm, but not lulled—can we think broadly and be in the right mood to do knowledge work and to collaborate with others," says Dr. Sally Augustin.

06 Moderate degrees of visual complexity to sustain interest without overwhelming.[24]

**07** Circadian lighting that helps occupants understand the passage of time, and time of day.[25]

08 Gently curved forms,[26] like arms of the sofa, that are physically and emotionally comforting.

09 Flowers and plants to enhance indoor and outdoor spaces. Even nature views, green roofs, and water elements can offer psychological respite and improve mental performance and creative thinking via cognitive restoration.[27] "Restoring depleted mental energy is vital in the context of the workplace: without it, our mood, mental performance, and interactions with others are significantly impaired," says Dr. Augustin.

10 Artwork of natural imagery can provide the same restorative effect, particularly if the composition suggests a space people could step into, with no foreground impediments.[28] "While art doesn't replace nature, it can approximate it," notes Dr. Augustin. In the open-plan modern workplace, lack of walls on which to hang art is a challenge, she adds. "In this case, consider plants, which are like freestanding sculptures."

11 Water features, especially those that create sounds of gently moving water, are stress reducing and mentally refreshing.[29]

12 A color palette that can mimic the complexity and beauty of nature, thus harnessing its
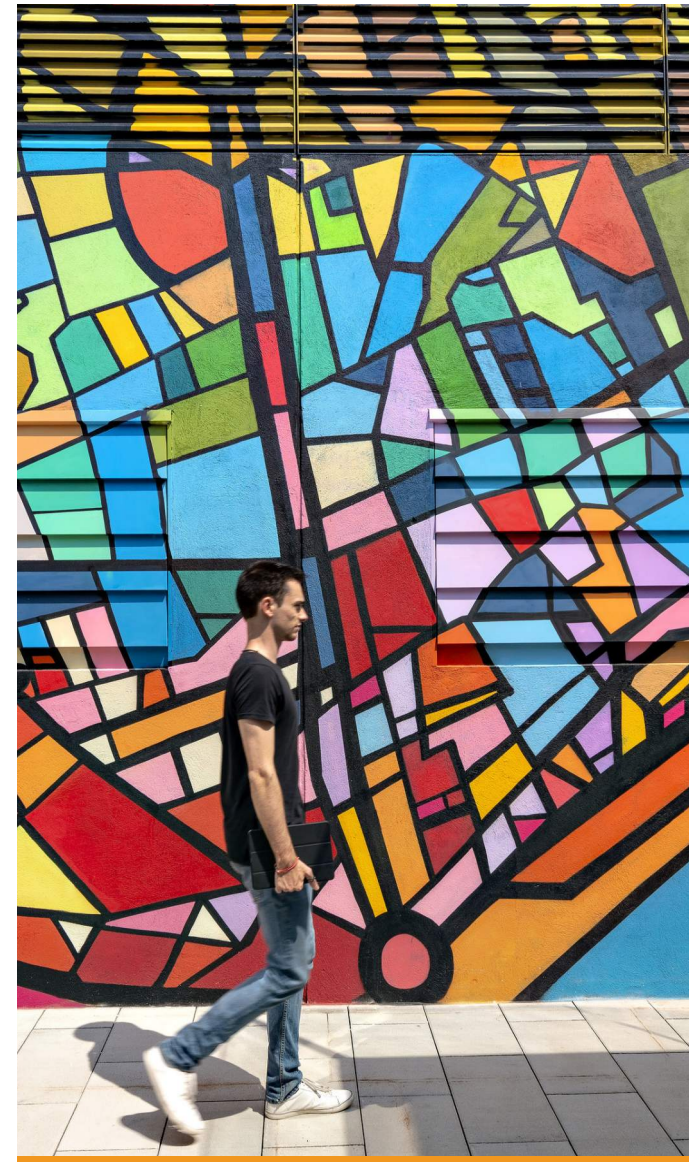
ABOVE: **CONFIDENTIAL**, BARCELONA
OPPOSITE: **CSG INTERNATIONAL**, BANGALORE

healing power. "This will promote well-being and remind us that we are connected," says Guido-Clark.

13 A "big indoor sky," as replicated in building atria with high ceilings and daylight access.

14 Windows, balconies, and skylights that provide real-time views of the sky.

15 Natural patterns in interior design and furnishings.

16 Places for social activity and story-telling that replicate the essence of the campfire.

A growing body of research on biophilia shows that places rich in natural features are beneficial to human health and well-being, compared to those lacking natural features.[30][31] The benefits of biophilic design attributes in built environments are testimony to the growing interest in this field and to the potential for design to enhance human health and experience across building types and cultures.

Align Physical & Digital Experiences Through Technology.

Technology can also be enlisted to guide desired behaviors. "Within a quickly changing workplace playbook—stand this far apart, walk this way in the corridor, sit here and not there—technology can be used to communicate the new normal to staff through a familiar channel, such as text message upon entry, or the gamification of desired behaviors," Wratten notes. He is quick to add, however, that technology is not a strategy in and of itself, "but rather plays a supporting role in furthering many desirable strategies, such as behavioral nudging, agency and control, and sense of trust."

Moving forward, he adds, it will be vital to design the digital experience in conjunction with the physical experience, especially as technology increasingly impacts our work/life balance (or lack thereof). Equally crucial is enabling an equitable experience for both remote and in-person workers, given the balance shift between them that's likely to come. "We

need to ensure the meeting experience for both parties is the same: that everyone can see the whiteboard, hear each other, and edit the same document together," Wratten stresses. Being conscientious about the needs of both kinds of workers will help in another way, too: "to avoid office FOMO—i.e. fear of missing out—as we transition from a completely remote workforce back to a blend."

Harness a Symbiosis of East-Meets-West Thinking.

Another dimension to designing positivity in the workplace in Asian cultures is through the application of traditional methods of Vastu Shastra and Feng Shui. "Twenty percent of our clients look to these ancient systems of knowledge, both of which focus on balancing 'energies' in the workplace," explains Su-San Tan, Director Workplace Strategy and Insights at Space Matrix. Practitioners of Vastu Shastra, a traditional architecture system originating in India, apply principles of design, layout, measurements, ground preparation, space arrangement, and spatial geometry. Feng Shui is the ancient Chinese practice of arranging physical objects to attract positive energy, based on the idea that everything in a person's surrounding environment affects his or her inner life. "Feng Shui practitioners believe that the placement of objects in a room, building, or other space will affect the flow of chi—life force or essential energy—within the space," Tan explains. "If there's good chi flowing, whoever's in the space will get a boost of positive energy." Both use the eight compass directions to determine placement and architecture, color selection and symbolism of the five elements (wind, water, earth, fire, wood) to attract positive energies.

These practices, while common throughout Asia and the Pan-Pacific region, are less-used stateside—although perhaps it's only a matter of time, says IA's Duff. "The Western cultures have been adopting aspects from Asian cultures for the past several decades: yoga, meditation, and Feng Shui are prominent examples."

STERLING BAY, CHICAGO IL

Put a Premium on Comfort—In All Its Guises.

Consciously and intentionally elevating environmental comfort, which evidence demonstrates is key to creating a positive at-work experience,[32] can help minimize workplace stressors. In her research and writing, author and environmental psychologist Dr. Jacqueline C. Vischer defines environmental comfort as a concept that comprises three related categories, all of which must be addressed holistically and in tandem:

Physical Comfort includes the basic human needs, such as safety, hygiene, and accessibility.

Functional Comfort is defined as ergonomic support for a user's performance-related tasks and activities: adequate lighting, the right desk and chair height, the proper settings for screen-based work, and other best practices.

Psychological Comfort results from feelings of belonging, ownership, and control over space. A workplace designed in a manner that messages to occupants that they have the variety and choice to go wherever they want in order to do their best work fosters a positive feeling.

Moving forward, workers are likely to have more choice about how often they go to the office. Making the workplace a destination that people want to go to requires that it be designed holistically and with intentionality—to enable physical, functional, and psychological comfort.

ABOVE: **JOHN BUCK COMPANY**, CHICAGO IL
OPPOSITE: **VANKE**, SHENZHEN

CONCLUSION

The Workplace Isn't Just a Physical Space—It's a Tool

The workplace isn't just a physical space in which to conduct one's work, of course. It is also a tool to enable coming together—a place of community- and culture-building, and a sort of safety net. As such, the design of the physical environment has a significant effect on one's emotional state. When it encourages a positive mood, has been designed to minimize physical and psychological stressors, and prompts the right behaviors, a number of beneficial results occur: occupants think more innovatively and creatively, collaborate more effectively, focus better, and much more. The workplace serves an important role in helping us—individuals, organizations, society as a whole—not only survive but thrive, and to flourish. And to write a new narrative about the future, one that's ultimately positive.

VANKE, SHENZHEN
OPPOSITE: **MCMILLAN LLP**, TORONTO
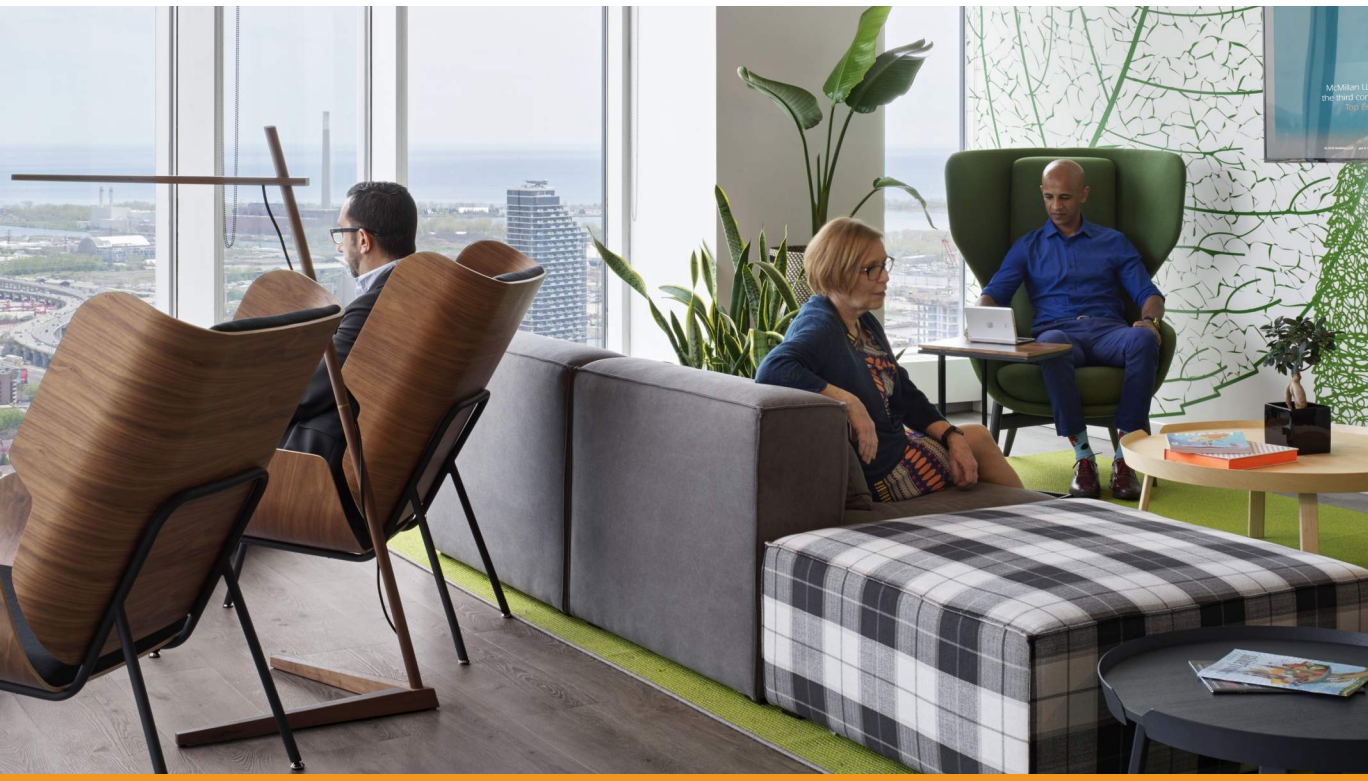
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Mary Lee Duff
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A Principal, Director of Strategy, and Ecos Studio Lead at IA Interior Architects, Mary Lee Duff delves into all aspects of the design process, ranging from her years of expertise in developing workplace strategies to a heightened interest in the impact of neuroscience and biophilia in the workplace.

Her experience working with top performing companies on the leading edge of technology in San Francisco and globally gives her a unique opportunity to apply strategic design thinking that continues to test the evolution of place and the development of high performance environments. Her interest in people performance has enhanced an appreciation of neuroscience, wellness, and R&D.

Su-San Tan
Director, Workplace Strategy & Insights
Space Matrix

As Director, Workplace Strategy & Insights at Space Matrix, Su-San Tan brings people, space, technology and objects together to create work environments that support people to do their best work and build flourishing communities.

Exploring a whole systems basis, she works with organisations to design their workplace strategies by performing diagnostics and conducting evidence-based research. Applying practices steeped in positive psychology principles, she facilitates design thinking and engages the wisdom of end users as competent architects of their change to activate positive transformation and organisational performance.

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Color • Jay Wratten, PMP, IALD, LC; Smart Building Strategist, WSP • Judith Heerwagen, PhD; Program Expert, US General Services, Office of Federal High Performance Green Building

CITATIONS

1.	For a chapter by Kim Cameron, the premier researcher in organizational virtuousness, outlining key points, see: http://webuser.bus.umich.edu/cameronk/PDFs/POS/POS%20-%20CHAPTER%204.pdf

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